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10/687,471

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Lin Wang

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FITCH, EVEN, TABIN & FLANNERY  
120 SOUTH LASALLE STREET  
SUITE 1600  
CHICAGO, IL 60603-3406

EXAMINER

HUSON, MONICA ANNE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* LIN WANG, PETE MILLER, JEFF UNDERWOOD,  
TONYA ARMSTRONG, MICHAEL KRAMER, SUSAN  
FREERS, ROGER MCPHERSON, E. DANIEL HUBBARD,  
and TERRY ANDREN

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Appeal 2010-003729  
Application 10/687,471  
Technology Center 1700

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Before CATHERINE Q. TIMM, BEVERLY A. FRANKLIN, and  
MARK NAGUMO, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-7 under 35 U.S.C. §103(a) over Nakatsuka (US 4,076,846; issued Feb. 28, 1978) in view of Redding, Jr. (US 5,455,342; issued Oct. 3, 1995), and further in view of Altieri (US 5,849,233; issued Dec. 15, 1998). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

The claims are directed to a cold-water soluble extruded starch product. Claim 1 is representative of the claimed subject matter:

1. An extruded starch product prepared by a process comprising:

providing *a hydroxyalkyl starch*, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 6 carbon atoms; and

extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said barrel having at least first and second zones, said first zone being upstream from said second zone, the temperature in said first zone being insufficient to gelatinize said starch and the temperature in said second zone being sufficient to gelatinize said starch, said starch being extruded in the presence of total moisture in said barrel no greater than about 25% by weight of said starch, said process including the step of controlling the rotational speed of said shaft to impart a specific mechanical energy to said starch sufficient to result in a soluble extruded starch product that is capable of extrusion through said die at said rotational speed, *said starch being substantially completely soluble in water at 25°C and being film-forming in aqueous solution.*

(Emphasis added.)

There have been appeals in two related applications, Application Serial No. 09/863,928 and Application Serial No. 10/687,498 (Appeal Nos.

2008-4344 and 2009-3246, respectively). In both cases, the decision of the examiner was reversed. In those appeals, the Examiner also relied upon Nakatsuka, Redding, and Altieri as evidence of obviousness. The difference, however, is with the claims. In both previously decided appeals, the claims were directed to a process. The claims in the present application are directed to a product. While the claimed product in the present application is defined by the process of making the product, “it is the patentability of the *product* claimed and *not* of the recited process steps which must be established.” *In re Brown*, 459 F.2d 531, 535 (CCPA 1972). Therefore, as a first matter, we agree with the Examiner that the present claims must be considered separately from the process claims of the previously reviewed appeals (Ans. 4). Each statutory class of claims must be considered independently on its own merits. No one rule controls them all. *In re Kuehl*, 475 F.2d 658, 665 (CCPA 1973).

The above being said, we agree with Appellants that the Examiner has not established a *prima facie* case of obviousness.

Nakatsuka is directed to a protein-starch binary molding composition (Nakatsuka, col. 1, ll. 6-7). The composition is formed from an alkali metal or alkaline earth metal salt of a protein material, a starch material, water, an organic low-molecular-weight plasticizer, and a lubricant (Nakatsuka, col. 1, ll. 16-21).

The claims, as evidenced by representative claim 1, are directed to “an extruded starch product.” There is a dispute as to the meaning of “starch product” and whether it encompasses the protein-starch binary molding composition of Nakatsuka (*Compare* Br. 5 and Reply Br. 1 *with* Ans. 5).

The Examiner finds that because Nakatsuka teaches starch as an ingredient, Nakatsuka's product can be termed a starch product in the same way that a cake is an egg product (Ans. 5). Appellants contend that the Examiner has interpreted "starch product" too broadly (Reply Br. 1). According to Appellants, the fact that the starting material is starch is irrelevant; what matters is the final product (Reply Br. 1).

During examination, "claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Appellants' Specification uses "starch product" to refer to modified or unmodified hydroxyalkyl starch that has been subject to the extrusion process of the invention (*see, e.g.*, Spec. 3:4-9 and 4:13-20). What makes the product of Appellants' process an "extruded starch product" is the extrusion process applied to the hydroxyalkyl starch. This process changes properties, such as the cold water solubility of the starch, but it does not appear to transform the starch chemically into a radically different chemical entity. A starch product, in the context used in the claims, must retain its identity as a starch. Such an interpretation is consistent with the use of the terminology in the Specification.

The Examiner does not dispute that Nakatsuka teaches that the mixture of protein and starch is not a simple mixture, but is chemically reacted to some degree as argued by Appellants (*Compare Br. 5 with Ans. 5*). Rather, the Examiner determines that the "starch product" as claimed

encompasses Nakatsuka's reacted mixture because the starch-protein of Nakatsuka uses starch as a starting material (Ans. 5). We agree with Appellants that the Examiner's interpretation is overly broad. The Examiner has not established that the protein-starch binary molding composition of Nakatsuka is a "starch product" within the meaning of the claims.

The claimed "starch product" must also have the structure and properties that arise when the claimed hydroxyalkyl starch is extruded as claimed. Claim 1 requires that "said starch," i.e., the previously recited hydroxyalkyl starch, be extruded in an extruder with a second zone that is heated to a temperature sufficient to gelatinize "said starch." The Examiner finds that Nakatsuka teaches a gelatinized starch product at column 3, lines 46-68 and column 6, lines 4-33 (Ans. 5). However, the portions of Nakatsuka cited by the Examiner do not discuss gelatinizing a hydroxyalkyl starch. In particular, column 6, lines 4-33 only discloses gelatinizing high-amylose starch. Nor does the Examiner provide the level of evidence and technical reasoning required to establish that gelatinizing hydroxyalkyl starch inherently occurs in the process of Nakatsuka.

Claim 1 further requires that "said starch" be "substantially completely soluble in water at 25°C."<sup>1</sup> The Examiner finds that Table 2 in column 13 of Nakatsuka provides times for solubility that show that the product is soluble as claimed (Ans. 5). We agree that this data indicates the time, in seconds, it takes for the compositions reported in Table 2 to

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<sup>1</sup> The Specification indicates that hydroxyalkyl starch is not cold water soluble until it undergoes the extrusion procedure (Spec. 3:4-9). Therefore, it appears that "said starch" as recited in the phrase "said starch being substantially completely soluble in water at 25°C" is intended to read "said starch *product*." To avoid § 112 issues, the claim should be amended.

completely dissolve. However, the solubility data is for a protein-starch composition that does not include hydroxyalkyl starch (*see* Nakatsuka, col. 12, ll. 11-18). The Examiner further refers to column 18, lines 1-3, which states that the extruded films of Examples 21 to 23 are cold water soluble, but the Examiner has not established that Examples 21 to 23 include hydroxyalkyl starch (Ans. 5). The Examiner has not provided any technical reasoning supporting a finding that either a hydroxyalkyl starch or an extruded starch product containing hydroxyalkyl starch has the claimed solubility property.

For the above reasons, we agree with Appellants that the Examiner reversibly erred. The decision of the Examiner is reversed.

REVERSED

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